Sewers. The expense and trouble thus to be incurred, and the doubtfulness of the benefit to be derived by a direct communication between a house and a sewer (?) have prevented the rapid introduction of a change of arrangement. One-half only of the houses in the City itself, and a far smaller quantity in the suburbs are drained into the sewers.

With this limited extent of house drainage, the sewers lying east and west of the City are termed "elongated cesspools;" and although the highness of the level of the city and the excellency of the sewers, exempt them from the term, yet the construction of flushing apparatus in the highest situations clearly proves that the refuse already passing into the City sewers does not flow naturally through them into the Thames. With respect to the Thames, it has to be remembered that the evidence received by the Sanitary Commission, and by them deemed so important as to be embodied in their first report, shews the immediate connection between the cholera and the mouths of sewers and rivers receiving the contents of sewers. At Carlisle, it is proved, for example, that cholera broke out near a mill, and raged down the dam-side, all the drains and sewers in that part of the town emptying themselves into the dam-race; few cases occurring in any other part of the town. Cholera appears to have generally in Europe followed the track of rivers and water-courses, and in cities and towns kept in a remarkable manner to the neighbourhood of sewer mouths. In Lancashire it manifested itself with peculiar virulence near the outlet of drains. At Liverpool one morning, it was discovered that several men had been seized with cholera on board a vessel lying in one of the docks. The men were sent to the hospital, and another ship, with a healthy crew, took her station. The next morning all the hands on board were ill of cholera. On examining the dock, it was found that a large sewer discharged its contents under the spot where the vessel was placed. In the metropolis it is proved that the cholera spread from Wapping along that side of the shore, including Limehouse; crossed to the opposite side of the river, namely, Rotherhithe and Bermondsey; it then attacked the lower parts of the borough of Lambeth; next the lower parts of Westminster; then it extended along the Fleet-ditch, and thence passed into the city. This confirms the statements which have frequently been made by competent authority, "that the atmosphere along the bank of the Thames is greatly vitiated by the dissipation of malaria." Dr. Hall, speaking of ventilation, asks very pointedly, "of what advantage is a stream of air bringing the filthy stenches of the Thames, and other rivers, into which our towns at present are drained; a most abominable contrivance, and one of the chief causes of typhus fever and other diseases." These are the consequences resulting from the drainage of perhaps one house in five into the sewers, taking the whole district within four miles of St. Paul's.

With all these facts before us, we hear every other week how much additional refuse has been flushed through the sewers. The sewer mouths being at low-water mark, the Thames can only receive the refuse at or near low-water mark,—a time when it is most objectionable and injurious to the public. It then first runs up the river, and as it afterwards returns, it is met by the fresh tide, to be washed backwards and forwards within a few miles of the city, vitiating the atmosphere and the water with which six out of the eight water companies supply the metropolis. If the house drainage be but as 1 in 5 (and this is admitted), then four times the quantity of refuse will be forced into the Thames by making house drainage compulsory. If the accumulation in cesspools be taken as averaging six years, then four-and-twenty times the quantity has to be forced into the Thames. On the 13th of January it appears "that 3,472 notices had been served for enforcing thorough drainage." Mr. Hosking, in a postscript to a late publication, has been endeavouring to arouse the attention of the public to the dangerous proceedings referred to.

The conviction and warning of a man so well acquainted with metropolitan building and drainage area, is well entitled to receive your Lordship's serious consideration; and when we have heard on the same day "that the offices of the Mendicity Society have been closed in consequence of the prevalence of typhus fever in the establishment; that one person had died from ulcerated bowels, traceable to the opening of a sewer near Thames-bank;" and that another person "had died from English cholera in forty-five minutes after being attacked;" then it does appear to be a duty to the public to make this appeal to your Lordship as Conservator of the Thames, and to call attention to the evidence referred to, respecting sewer mouths and rivers receiving the contents of sewers.—I have the honour to be, your Lordship's most obedient servant, J. J. Morewood.

London, March 16th.

CONSTRUCTION OF GRANARIES.

In the January number of the *Westminster Review*, the means of preserving corn is discussed, and the following remarks are made on the construction of granaries:—

"Three conditions are essential to the process of putrefaction; viz. heat, moisture, and still air. With wind, moisture is carried off; with cold, the decomposing process is checked, as may be seen by the carcasses of animals that lie through the winter in snowy mountains, and dry up to glue. Without air, every thing is locked up and remains *in statu quo*: as reptiles have been buried for ages in blocks of stone or ancient trees, and then resumed their vital functions, unchanged by time.

In direct opposition to these principles are the granaries of Great Britain and other countries constructed. Their site is generally the bank of a river, or the sea-side. They are built of many floors, at a vast expense. They are provided with many windows, each floor being the height of a man, yet not permitting more than twelve to fifteen inches depth of grain on each floor for fear of heating, unless in the case of very oil samples. Men are continually employed to turn the grain over, to ventilate it, and clear out the vermin; and the weevil is naturalised in every crevice, as surely as bugs in neglected London beds, or cockroaches in West Indian sugar ships. It is the admission of air that permits this evil, that promotes germination, that permits the existence of rats and mice. *In the exclusion of air is to be found the remedy.*

The practicalization of this is neither difficult nor costly: on the contrary, close granaries might be constructed at far less proportional cost than the existing kind. They might be made under ground as well as above ground, in many cases better. They might be constructed of cast-iron, like gasometer tanks; or of brick and cement; or of brick and asphalte, like underground water-tanks. It is only required that they should be air-tight, and consequently water-tight. A single manhole at the top, similar to a steam-boiler, is all the opening required, with an air-tight cover. The air-pump has long ceased to be a philosophic toy, and has taken its place in the arts as a manufacturer's tool: and no difficulty would exist as to that portion of the mechanism. Now, if we suppose a large cast-iron or brick cylinder sunk in the earth, the bottom being conical, and the top domed over: an air-pump adjusted for exhausting the air, and an Archimedean screw pump to discharge the grain, we have the whole apparatus complete. If we provide for *wet* grain, a water-pump may be added, as to a leaky ship."

The advantages of air-tight chambers for many other purposes than the preservation of corn would be great. Gutta Percha would seem to afford the means for making the joints of openings, &c., air-tight, at small expense. Few people, however, think of adapting new materials. Routine enslaves us all. We cannot see beyond our noses.

Intramural Interment.—The committee of the metropolitan clergy, called to examine into a plan for establishing "Parochial burial-places," have made an important report on the subject, admitting the necessity of discontinuing interments within the metropolis.

Correspondence.

A QUERY.

Sir,—Will one of your correspondents favour me with a solution to the following question?

Query.—A church bell, with its appurtenances, weighing five tons, is to be supported in the middle by a beam, having a clear width between the bearings of 20 feet.

Required to know the best form of beam in either of the following materials, and which of these materials is best suited for the purpose, viz., English oak, Baltic timber, or cast-iron. X. Y. Z.

Yeovil.

Miscellanea.

Jones's Friction Hammer.—We have been favoured, says the *British Mirror*, with a sight of a novel machine which has just been completed, and is now at work at the Great Western Works, the invention of Mr. John Jones, manager of the works, who also invented the "Cambrian Engine." The machine is called a "Friction Hammer," and consists of frames of cast-iron, in which are vertical slides acting as guides to the hammer, and also supporting the machinery necessary for putting the hammer in motion. The hammer consists of a plane bar of flat wrought iron, so arranged as to work in the slides, and is raised by means of two vertical rollers turning in opposite directions, which are made to bear upon the bar by an exceedingly simple arrangement of levers. A slight pressure upon the handle of one lever raises the hammer to any height not exceeding 7 feet; the pressure being removed it falls by its own gravity; this lever is also arranged so as to stop the hammer in any part of its descent, should circumstances render it necessary. The friction rollers are put in motion by means of straps and pulleys, fly-wheels being also fitted on each strap. A double punching and shearing machine of great power, by the same inventor, has also just been completed at these works.

New Market-Hall at Lytham.—The foundation has been laid of a new market at the village of Lytham, near the mouth of the river Ribble in Lancashire. The market is 100 feet long, 36 feet wide within the walls, and 24 feet high to the inside of the apex of the roof. The exterior has in the centre a tower 17 feet square and 30 feet high, exclusive of a bell and clock turret above. In the centre is an archway formed by detached Tuscan columns and square pilasters rusticated by square blocks left rough; above is the entablature of the order, and an arch and keystone carved with a cornucopia, symbolic of plenty. Above is a string course, triple window, with circular heads and keystones, and above these a cornice of bold projection with cantilevers, &c. Out of the roof an octagon turret rises, containing a clock and bell. On each side of the centre tower, on the ground-floor, are four open arches. The ends have each three stone arches, the centre ones containing wooden doors, the side arches, windows rusticated. The building is of red brick, with moulded quoins; the plinths, imposts, keystones, columns, pilasters, &c., of stone. Mr. Charles Reed, of Liverpool, is the architect employed.

Assessment of Milton.—Sir: Noticing in your last week's Builder a statement to the effect that the parishes of Gravesend and Milton were about to be re-assessed, I beg to give you a list of the tenders which were delivered to the Board of Guardians for that purpose, by which you will see that the appellation "blind," which is sometimes applied by you to certain builders, may with equal propriety be attached to certain surveyors. The tenders were as follows:—

Messrs. Hubble and Gould, jun.	£250
Mr. Doule	221
Mr. Martyr	120
Mr. Tress	120
Messrs. Burr and Son	64

I may observe that these tenders were not for the assessment of *Gravesend* and Milton, but for that of Milton only; the number of assessments in which parish exceed 1,900!

Gravesend. Consistency.